UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,310	08/22/2003	David A. Kovalsky	67,008-073	9196

26096 7590 07/12/2005

CARLSON, GASKEY & OLDS, P.C.
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009

EXAMINER	
VERDIER, CHRISTOPHER M	
ART UNIT	**PAPER NUMBER**
3745	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,310	KOVALSKY ET AL.	
	Examiner	Art Unit	
	Christopher Verdier	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) 16 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 August 2003 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8-22-03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-15, drawn to a hollow composite article/composite rotor blade spar, classified in class 416, subclass 226.

II. Claim 16, drawn to a method of forming a hollow composite article, classified in class 87, subclass 13.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process, such as by manual lay-up of the fibers.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Davis Wisz, Attorney of Record, on June 29, 2005, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claim 16 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "33" has been used to designate both the counterweights and the composite layers. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Appropriate correction is required.

In paragraph 28, last line, "on" should be changed to -- one --.

Reference numeral 33 has been used for both the counterweights (paragraph 25, line 7) and the composite layers (paragraph 31, line 2).

In paragraph 34, line 1, "76" should be changed to -- 7 --.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 12, which recites that a leading edge and a trailing edge conic of the spar comprise only the braided bias angle fibers, has no antecedent basis in the specification.

Examiner's Suggestion to Claim Language

The following is a suggestion to improve the clarity and precision of the claims:

In claim 15, line 1, "said" may be changed to -- a --.

Claim Objections

Claims 5 and 12 are objected to because of the following informalities: Appropriate correction is required.

In claims 5 and 12, line 2, "angle" should be changed to -- angled --.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 recites that a leading edge and a trailing edge conic of the spar comprise

only the braided bias angle fibers. This is inaccurate, because the leading and trailing edge conic of the spar would also include the zero degree fibers as a result of the braiding; see figure 3.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-7, 9-11, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Graff 5,222,297. Note the hollow composite article/composite rotor blade spar, comprising a multiple of braided bias angled fibers 26 oriented non-parallel to a longitudinal axis, and a multiple of zero degree fibers 28 interwoven with the multiple of braided bias angled fibers, the zero degree fibers substantially parallel to the longitudinal axis (abstract, lines 6-8). Note that the multiple of zero degree fibers are broadly considered to be interwoven with the multiple of braided bias angled fibers, because the zero degree fibers are located between sheets of the multiple of braided bias angled fibers (see column 5, lines 33-37) and are laid-up during the braiding (column 5, lines 33-37). As seen in figure 1C, the braided bias angled fibers are offset approximately 45 degrees relative to the longitudinal axis. The braided bias angled fibers are braided on a mandrel and therefore form a spiral path around the longitudinal axis (column 5, lines 16-29). A leading edge and a trailing edge conic of the hollow composite article comprise the braided bias angle fibers. The braided bias angled fibers are oriented to accommodate a twist

along the longitudinal axis, due to their angled and spiral formation. The zero degree fibers are positioned on an upper and a lower surface of the hollow composite article. The longitudinal axis is a faying axis, since the rotor blade spar is capable of changing pitch about the longitudinal axis. The mandrel used to form the spar is non-linear, due to the non-linear shape of the spar.

Claims 1-3, 5-10, and 12-15 (as far as claim 12 is definite) are rejected under 35 U.S.C. 102(b) as being anticipated by Violette 2002/0008177 (figures 1-4). Note the hollow composite article, comprising a multiple of braided bias angled fibers 40, 44, 48, 52 oriented non-parallel to a longitudinal axis (at an angle of 30-60 degrees to a longitudinal axis), and a multiple of zero degree fibers 42, 50 interwoven with the multiple of braided bias angled fibers, the zero degree fibers substantially parallel to the longitudinal axis (paragraph 23, lines 7-9). Note that the multiple of zero degree fibers are broadly considered to be interwoven with the multiple of braided bias angled fibers, because the zero degree fibers are located between sheets of the multiple of braided bias angled fibers. A leading edge and a trailing edge conic of the hollow composite article comprise the braided bias angle fibers. The braided bias angled fibers are oriented to accommodate a twist along the longitudinal axis, since the blade can be twisted (paragraph 17). The zero degree fibers are positioned on an upper and a lower surface of the hollow composite article. A separate composite sheet 46 is interwoven with the multiple of braided bias angled fibers and the multiple of zero degree fibers, because it is located between sheets of the zero degree fibers and sheets of the multiple of braided bias angled fibers. Note the composite rotor blade spar 12/30. The longitudinal axis is a faying axis, since the rotor blade spar can change pitch about the longitudinal axis. A leading edge and trailing edge conic of the

spar comprise only the braided bias angled fibers 40. The zero degree fibers are positioned on an upper and a lower surface of the spar. Concerning claim 15, note that foam core 30 functions as a non-linear mandrel.

Claims 1, 3-7, 9-11, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Plummer, Jr. 4,741,087 (figures 1-3). Note the hollow composite article, comprising a multiple of braided bias angled fibers 12, 13 oriented non-parallel to a longitudinal axis, and a multiple of zero degree fibers 14 interwoven with the multiple of braided bias angled fibers, the zero degree fibers substantially parallel to the longitudinal axis. As seen in figure 2, the braided bias angled fibers are offset approximately 45 degrees relative to the longitudinal axis. The braided bias angled fibers form a spiral path around the longitudinal axis. A leading edge and a trailing edge conic of the hollow composite article comprise the braided bias angle fibers. The braided bias angled fibers are oriented to accommodate a twist along the longitudinal axis, due to their angled and spiral formation. The zero degree fibers are positioned on an upper and a lower surface of the hollow composite article. The longitudinal axis is broadly considered to be a faying axis, since the hollow composite article is capable of rotating about the longitudinal axis. The mandrel used to form the hollow composite article on the braiding machine is non-linear, due to the non-linear shape of the hollow composite article. The recitation in claims 9-11 and 15 of "composite rotor blade spar" has not been given weight, because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural

limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claims 1, 4-7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by You 5,700,533 (figures 3-5). Note the hollow composite article, comprising a multiple of braided bias angled fibers 11, 12 oriented non-parallel to a longitudinal axis 14, and a multiple of zero degree fibers 13 interwoven with the multiple of braided bias angled fibers, the zero degree fibers substantially parallel to the longitudinal axis. The braided bias angled fibers form a spiral path around the longitudinal axis. A leading edge and a trailing edge conic of the hollow composite article comprise the braided bias angle fibers. The braided bias angled fibers are oriented to accommodate a twist along the longitudinal axis, due to their angled and spiral formation. The zero degree fibers are positioned on an upper and a lower surface of the hollow composite article. The longitudinal axis is broadly considered to be a faying axis, since the hollow composite article is capable of rotating about the longitudinal axis. The recitation in claims 9-11 of "composite rotor blade spar" has not been given weight, because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
July 7, 2005

Christopher Verdier
Primary Examiner
Art Unit 3745